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Monday, August 14, 2006

Book consciousness

Marshall McLuhan, Elizabeth Eisenstein and others have described the importance of the "printing revolution" to European developments such the Reformation, Renaissance, and science. According to Eisenstein, printing finally foiled the entropy that had destroyed the vast majority of written works since ancient times. Printing also enlarged the bookshelves of scholars all over Europe: by a factor of fifty or more by the middle of the 16th century.

I'd go even farther than Eisenstein. Printing soon brought literacy to vast numbers of people (eventually to the vast majority of us). Printing, especially printing in newly standardized vernaculars, changed the very consciousness of people, and turned a small corner of the world, Western Europe, into a culture that in many ways conquered the world. Widespread decentralized printing and the accompanying book markets, new schools, and rise of literacy gave rise to a new form of consciousness -- book consciousness.

Colombus was among the first generation of navigators who had been reading avidly and widely since a child. On his bookshelf was Marco Polo's Travels. On his voyages he carried maps made by geographers who had been literate sincethey were children, and he carried astronomical tables that had been printed widely across Europe. These tables had been made by a Hungarian-Italian mathematician whose bookshelf was full of ancient Greek science and mathematics. Such information had been rather inferior and far less available just a few decades before.

With the easy conquest by tiny Portugal of Asia's vast and ancient sea trade routes, rapidly literizing Western Europeans were by the early 16th century demonstrating a vast superiority in naval affairs. In navigation as in battle officers using accurate charts and astronomical tables were at a premium. (Europeans did not have quite such good luck on land against the Turks). Western Europeans would retain completely uncontested (except among each other) naval superiority on the world's oceans until the Japanese victory over Russia in the early 20th century. The Japanse by then had long since taken up printing and had a very well read population . Even on the ground by the 18th century English merchants, officers, and civil servants, practically all of them literate and widely read since young children, were finding it quite easy to conquer and take over the administration in far larger and otherwise highly advanced civilizations like India.

Soon after the spread of the printing press, the very fundamentals of organization in Western Europe began to change. In the late Middle Ages organizations, even royal and papal bureaucracies and banking "super-companies", rarely engaged more than a few dozen employees. Organizational size came up against the severe limit of the Dunbar number. By the end ofthe 16th century, the colonial companies and bureaucracies of Spain and Portugal were vast, highly literate, and well coordinated. Officer corps had often been raised on military books and thus able to draw lessons from a wide variety of ancient and recent battles. Even a minor salt extractor in

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Nick Szabo

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Wear, England, was employing 300 men by the mid 16th century. (Large organizations in manufacturing would largely have to wait until the 18th century and the industrial revolution, however).

Before book consciousness there had been no national languages, but only a range of often mutually incomprehensible dialects and in Western Europe the language of the tiny literate elite, Latin. With newly unified national vernaculars, organizations were able to coordinate and grow in an unprecedented manner. A much larger group of people, raised on the same written language, increasingly also came to look and speak similarlyand become far more mutually trusted. It was the birth of national loyalty and nationwide webs of trust. The "tribe" to which we are instinctively loyal vastly increased in size. The pool of already somewhat trusted "same tribe" people from which a bureacracy could recruit new members vastly increased. National polities and militaries were able to coordinate political, economic, and battlefield strategies in an unprecedentedmanner. The 16th century saw the first major growth of the joint-stock corporation, enabling far more capital to be invested in the enlarging organizations that engaged in mining and manufacture as well as government and conquest. This development is probably a response to the new ability to form larger organizations, since the basic ideas (corporate law, shares of stock, etc.) had already been in use in Europe for quite some time. Some of the early English 16th century joint-stock companies included military expeditions (Drake's privateering voyages and naval actions were financed through joint stock companies: a different company for each expedition), trading and slaving companies (the Muscovy and Guniea companies) and mining and manufacturing companies (the Royal Mining Company and the Royal Batteries & Mines Company). The most famous became the English East India Company, but many of the American colonies were also joint-stock corporations. The first widely traded and initially most successful joint-stock company was the Dutch East India company,which quickly grew far beyond the Dunbar number to have thousands of employees.

Book consciousness changed almost every profession. Good books on a trade could greatly increase the knowledge imparted during apprenticeships, and indeed eventually led to the end of the apprecenticeship system. Meanwhile, widely printed books on mathematics and science, such as Euclid's Geometry, gave knowledge that could be used in a wide variety of occupations, and training was often restructured to assume and build upon such new general knowledge. This led to a profound change in labor productivity, moving mankind away from the Malthusian curve and (along with the expansion of organizational size beyond the Dunbar limit) eventually to the industrial revolution.

A typical example of the rise of book consciousness was the radical improvement in how cases were reported in the English legal system by the late 16th century. For the first time, cases and statutes were widely and accurately cited. This reflected the fact that judges, barristers, attorneys, and even some of the parties had for the first time printed books of statutes and cases at their fingertips -- instead of having to find the single copy of a scroll hidden away in some monk's or bureacrat's library. The first great English opinion writer, Sir Edward Coke, dates from this period. In turn, the wide availability of printed statute and case law led to basic changes in the way we interpret and view the law.

Almost invariably, during the colonial period, when largely illiterate cultures (i.e. cultures where mostof the second-tier nobility, military officers, and merchants, and almostall craftsmen and farmers, had not been raised on books) were encountered by literate Europeans, the latter described the former with severe ephithats, suchas "savages." This makes our forbears seem odious to us, who understand that all human races are capable of literacy, and indeed by now book consciousness has spread to most of the globe and most of us encounter a widevariety of highly literate people every day. However, at least in the 16th century for book-raised Western Europeans this was not so much a racialprejudice as a largely accurate observation. "Savage" was applied not only to neolithic Africans and Americans, but also to Irish backlanders and Scottish highlanders. There was a similar Western European attitude to otherwise very advanced civilizations in India and China. From the 16th century onward, any culture that did not have book consciousness was a culture of savages.

It's possible that today the availability of thousands of times still more material to read, readily accessible by search engine, and the expansion of a small number language groups (but especially English) to a worldwide real-time network is creating a new "Internet consciousness." People within this network may soon come to see people outside of it as savages. But that is a topic for another post.

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Posted by Nick Szabo at 3:37 PM

7 comments:

Anonymous said...

As I think you yourself point out elsewhere, there were a bunch of advantages Western Europe had that predate printing. The clock, marine insurance, and the cannon are the three predominant ones I can think of offhand..

9:38 PM

Nick Szabo said...

You're quite right. I wonder as a kind of followup if there are not two more major media effects to be considered:

(1) I've described how European institutions of public timekeeping preceeded and motivated the near-simultaneous invention of two technologically disjoint inventions, the sandglass and the mechanical clock. Similarly, it's probably the case that the market and decentralized demand for books beyond central authorities (e.g. among literate nobles, rich merchants, and university students as well as from the Church) helped give rise to a difficult to stop, and rapidly spreading printing industry, one far more decentralized and harder to regulate than China's.

The explanation for why China failed to develop widespread book consciousness until much later, despite having invented the printing press, may however be more mundane, having to do with the large size of their alphabet, which probably made type casting far more expensive than type casting for the Roman alpabet.

(2) Western Europe took advantage of the printing press to a far more significant degree than Korea and China before it, and many regions after it, probably due its decentralized and largely unregulated markets. The same effect might have also influenced the earlier use of scribal culture itself in subtly more productive directions. (After at least 1050. Before that, Western Europe was far behind both India and China and most of Islam in almost every category or by almost any measure). For example, there's probably nothing in late medieval China that rises to the substantial innovation of commercial institutions in northern Italy, and especially Genoa, between the 12th and 14th centuries.

That statement has to be judged against the backdrop of our vast and highly unfortuneate igorance of Chinese commercial institutional history, alas. We can probably also learn a vast amount from why the early medieval Chinese economy and institutional evolution so outpaced Western Europe and most of the rest of the world's. As well
However, we have far more information from Western European history, mostly due to that printing press again, than we do from these equally important but largely lost prior periods of institutional evolution.

9:58 PM

JSBolton said...

Daniel Boorstin's Discoverers, pp.508-10, describes how a European printing press, woodblock printing with movable type and without, metallic movable-type printing, and manuscript copying all coexisted in Japan in the 1600's.
The European press, though more advanced, was the technology which was discarded for centuries.
The technology itself, and access to it, were apparently not the decisive factors.
"For a society still oriented to its classics, such blocks provided the easiest way to reprint works that were in continuing demand. A

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negligible number of movable-type editions were printed in Japan in the next centuries." says Boorstin on p.509.
Korea has a similar story of stasis in spite of available technology.
Spanish language in Latin America has not resulted in a nation of wide trust, or not one larger and more internally cooperative than Mexico.
Brazil is not going to shake the world's cultural underpinnings.
National language unity on the large scale, combined with publishing technology will not themselves give you a rennaissance.

12:02 AM

Anonymous said...

New tech needs a 'killer ap'. With the VCR and Internet it was porn, for the printing press in medieval Europe it was the Bible. China lacked a killer ap such as the Gutenberg Bible. No one book had preeminence in China like the Bible did in Europe. The Chinese invented fiat paper bank notes, this may have become their killer ap, but paper money waned when it caused hyper inflation during the reign of Kublai Khan.

Most don't know that the Chinese invented movable type printing 400 years before Gutenberg. Most people also don't know that the Gutenberg Bible wasn't even the first book in Europe printed in movable type. The first book printed in Europe was called 'Mirror of our Salvation' by Gutenbergs partner Laurens Janszoon Koster. Gutenberg didn't invent or re-invent movable type printing, about the only innovation he made was inventing ink that could adhere well to metal type.

The fact that people know nothing of 'Mirror of Our Salvation' but know plenty of the Gutenberg Bible may indicate the Bible acted as the killer ap for printing in Europe.

6:12 AM

Anonymous said...

I think the importance of the Dunbar number is overexaggerated. You could get very large 'supercorporations' - the Bardi bank reached something like 300 employees, and the Medici peaked at around 90. The problem seems to have been the arrangements between compartments (the Medicis pioneered a limited liability structure that helped them avoid some of the problems that plagued earlier banks like the Bardi) and the simple fact that the economy, irrespective of financial blocks such as usury's forbidding by the Church, had trouble supporting any larger companies - the later Medici bank was significantly smaller than the Bardi. Not for lack of trying, but because the markets were not really there or had shrunk (the Bardi, for example, had a number of factories in the Middle East, but Florentians had been squeezed out by the time the Medici bank was founded).
So the legal forms which would have allowed such supercorporations to exist were not yet developed, nor were the conditions favorable. I don't see how the Dunbar number could come into play there.

3:28 PM

Nick Szabo said...

JSBolton: I agree there is far more to book consciousness than just having a printing press. The printing press was a necessary but not sufficient condition for the wide spread of literacy and the consequent revolutions in organization and culture. The Florentines were able to have a relatively minor and very temporary revolution just prior to the printing press through a large merchant community speaking and writing a common vernacular, reflected in e.g. Dante.

anonymous 1: I'm not sure the Bible was really the "killer app." Gutenburg and Fust probably made more money by selling Donatus' Latin grammar, widely used in universities. Fust's background was as a (previously manuscript) book seller to universities.

If I had to pin down three key differences between East Asia and European reception of printing they'd be (1) a small phonetic alphabet is more suited to printing and was already standard and widely used in Europe, (2) the decentralized nature of European printing business (Europe within a couple decades of Gutenburg had many competing printers not directly controlled by a government

or religious organization), and (3) the widespread nature of European learning -- especially the universities and the already literate merchants. The need for unversities in turn was driven by the almost uniquely European need for those much-maligned lawyers. There's a strong relationship here to the European adversarial legal system (as opposed to bureacratic legal systems dominant in Asia). Remind me to write about that some time. :-)

anonymous 2: The Bardi supercompany was quite exceptional and didn't last very long. You'd have a very hard time finding any other examples in the entire stretch of civilization from the Sumerians in 3,000 BC until the European 16th century where Dunbar number (really a range between about 100 and 200 people where organization becomes quite difficult) was exceeded for any long period of time by a commercial organization. The Dutch East India Company, with its managers and most of its employees raised on the same common language due to printing, was the first company to do so, and quite exceptionally so (it had by the 17th century over 10,000 employees if I recall correctly) and many other companies (mostly English) soon followed within a century.

This radical change in the ability of businesses to organize employees the leads directly to European empires, and later to the industrial revolution. It cries out to be explained. It corresponds to the rise of literacy in a common language. The most likely cause is the expansion of the perceived "ethnic boundary" created by language (as Steve Sailer and others have discussed) or the "tribal illusion" and resulting network of easily trusted people (as I have discussed, heretofore independently). This phenomenon explains the exceptional (but comparatively very humble) pre-printing-press example of the Florentine supercompanies as well. But had it not been for the printing press that Renaissance, like many earlier ones, would have died and been largely forgotten.

The Dunbar number is important in all this because it's a psychological limit on how many people we can get to know well enough to develop the long-term relationships needed for solid trust. Google for "Christopher Allen" and "Dunbar number" -- Chris is a modern venture capitalist and researcher of social networks who has observed that corporate culture changes radically as the size of organizations grow larger and in particular as they exceed the Dunbar range.

Before the European printing press commecial organizations almost never exceed the Dunbar number. You've named one of the very small set of exceptions I know of, the early 14th century "supercompanies", which only barely and temporarily exceed the Dunbar range. This was probably made possible by the unusually high level of literacy in a common language (reflected by e.g. Dante writing in the vernacular) among the Florentines.

9:33 PM

Nick Szabo said...

I should also point out that a few northern Italian cities of that time, in particular Genoa, Florence, and Venice, thanks to recent innovations like insurance and double-entry bookeeping, were far more advanced than the rest of the world in business culture generally. These also were part of the background that made possible both the super-companies and (when these innovations spread north) the vastly larger colonial and later industrial corporations.

9:37 PM

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